

**LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL**

<b>Reference Number</b>	CA18/2/3/10309						
<b>Classification</b>	Accident	<b>Date</b>	10 April 2023			<b>Time</b>	1100Z
<b>Type of Operation</b>	Private (Part 94)						
<b>Location</b>							
Place of Departure	Worcester Aerodrome (FAWC), Western Cape Province		Place of Intended Landing	Private Farm in Piketburg, Western Cape Province			
Place of Occurrence	Private Farm in Piketburg, Western Cape Province						
GPS Co-ordinates	Latitude	32° 48' 06" S	Longitude	018° 51' 50" E	Elevation	493ft	
<b>Aircraft Information</b>							
Registration	ZU-FCB						
Make; Model; S/N	Ekolot JK-05-Junior (Serial Number: JK-05 Junior)						
Damage to Aircraft	Substantial			Total Aircraft Hours	552.6		
<b>Pilot-in-command</b>							
Licence Type	National Pilot Licence		Gender	Male		Age	53
Licence Valid	Yes	Total Hours	215.1		Total Hours on Type	207.8	
Total Hours 30 Days	8.0			Total Flying on Type Past 90 Days	30.9		
<b>People On-board</b>	1+1	<b>Injuries</b>	0	<b>Fatalities</b>	0	<b>Other (on ground)</b>	0
<b>What Happened</b>							
<p>On Monday, 10 April 2023 at 1000Z, a pilot and a passenger on-board a JK-05 Junior aircraft with registration ZU-FCB took off on a private flight from Worcester Aerodrome (FAWC) in the Western Cape province to a private farm in Piketburg in the same province. The flight was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011 as amended.</p> <p>The pilot and the passenger reported that the flight from FAWC to Piketburg was uneventful. On their arrival at the farm after 60 minutes of flight time, the pilot joined overhead the landing strip at 1 500 feet (ft) above ground level (AGL) and conducted an unmanned procedure on Runway 35. He noticed that the windsock indicated the wind to be blowing in an easterly direction, which was a crosswind from the left. The aircraft was too high when the pilot landed, and he decided to conduct a go-around.</p> <p>On the next attempt to land, the aircraft bounced twice and landed hard with the nose gear first, which broke off. As a result, the propeller struck the ground before the aircraft came to a stop. After disembarking from the aircraft, the pilot noticed that the windsock indicated wind to be blowing from the west at 10 knots, which was a tailwind on Runway 35. The aircraft sustained substantial damage; the pilot and the passenger were not injured.</p>							

The weather information below was obtained from the Meteorological Aerodrome Report (METAR) from the South African Weather Service website for 10 April 2023 at 1100Z, recorded at Langebaan Airport (FALW), Western Cape province. The accident site is located 70 kilometres (km) north-east of FALW.

Wind Direction	210°	Wind Speed	11kts	Visibility	10km
Temperature	20°C	Cloud Cover	CAVOK	Cloud Base	CAVOK
Dew Point	8°C	QNH	1021hPa		



**Figure 1:** The aircraft at the accident site. (Source: Operator)

Post-accident Inspection

According to the pilot questionnaire, the cause of the accident was a hard landing.

Ekolot JK-05-Junior Landing Procedure (Source: Ekolot JK-05-Junior Pilot’s Operating Handbook)

*Landing distance for gravel runway from 50-foot [15 m] obstacle equals approximately 660 ft [200 m] – flap position “2” (+40°) and approach airspeed 55 kt (IAS)*

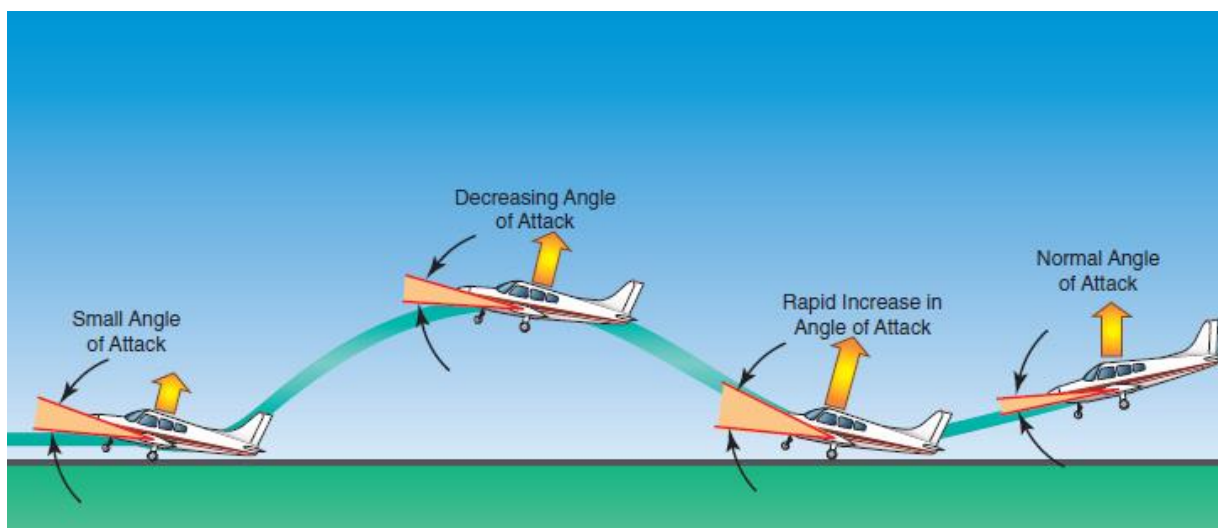
Bouncing During Touchdown (Source: FAA Airplane Flying Handbook Chapter 8)

*When the airplane contacts the ground with a sharp impact as a result of an improper attitude or an excessive rate of sink, it tends to bounce back into the air. Though the airplane’s tyres and shock struts provide some springing action, the airplane does not bounce like a rubber ball. Instead, it rebounds into the air because the wing’s angle of attack was abruptly increased, producing a sudden addition of lift [Illustration 1]. The abrupt change in angle of attack is the result of inertia instantly forcing the airplane’s tail downward when the main wheels contact the ground sharply. The severity of the bounce depends on the airspeed at the moment of contact and the degree to which the angle of attack or pitch attitude was increased. Since a bounce occurs*

when the airplane makes contact with the ground before the proper touchdown attitude is attained, it is almost invariably accompanied by the application of excessive back-elevator pressure.

This is usually the result of the pilot realising too late that the airplane is not in the proper attitude and attempting to establish it just as the second touchdown occurs. The corrective action for a bounce is the same as for ballooning and similarly depends on its severity. When it is very slight and there is no extreme change in the airplane's pitch attitude, a follow-up landing may be executed by applying sufficient power to cushion the subsequent touchdown, and smoothly adjusting the pitch to the proper touchdown attitude. In the event a very slight bounce is encountered while landing with a crosswind, crosswind correction must be maintained while the next touchdown is made. Remember that since the subsequent touchdown will be made at a slower airspeed, the upwind wing will have to be lowered even further to compensate for drift.

Extreme caution and alertness must be exercised any time a bounce occurs, but particularly when there is a crosswind. Inexperienced pilots will almost invariably release the crosswind correction. When one main wheel of the airplane strikes the runway, the other wheel will touch down immediately afterwards, and the wings will become level. Then, with no crosswind correction as the airplane bounces, the wind will cause the airplane to roll with the wind, thus exposing even more surface to the crosswind and drifting the airplane more rapidly. When a bounce is severe, the safest procedure is to EXECUTE A GO-AROUND IMMEDIATELY. No attempt to salvage the landing should be made. Full power should be applied while simultaneously maintaining directional control and lowering the nose to a safe climb attitude. The go-around procedure should be continued even though the airplane may descend, and another bounce may be encountered. It would be extremely foolish to attempt a landing from a bad bounce since airspeed diminishes very rapidly in the nose-high attitude, and a stall may occur before a subsequent touchdown could be made.



**Illustration 1:** Illustration shows how the aircraft bounce. (Source: FAA Airplane Flying Handbook)

W : 11.00  
Wh : 8.43  
Wc : 7.07



35

Wind  
Tailwind  
Crosswind

The wind component calculator above indicates that there was a tailwind component of 8.43 knots at the time of the accident.

### Findings

1. The pilot was initially issued a National Pilot Licence (NPL) on 30 October 2014. The licence was reissued on 26 June 2022 with an expiry date of 25 June 2024. His Class 4 medical certificate was issued on 19 May 2022 with an expiry date of 19 May 2024 with no medical restrictions.
2. The last annual inspection on the aircraft was certified on 23 June 2022 at 509.6 total airframe hours. The aircraft had accumulated 552.6 hours at the time of the accident, which meant that it was flown a further 43.0 hours after the annual inspection.
3. There was a tailwind component at the time of the flight.
4. The Authority to Fly (ATF) was initially issued on 2 November 2017. The latest ATF had an expiry date of 31 August 2023.
5. The Certificate of Registration (C of R) was issued to the present owner on 3 August 2022.
6. The landing configuration with regards to indicated airspeed (IAS) was 55 knots with flaps at first stage (15%). According to the Pilot's Operating Handbook (POH), first stage flaps must be selected on approach for a normal landing (see Ekolot JK-05-Junior Landing Procedure above).
7. According to the pilot, there was a sudden change in wind direction during his second attempt for landing.

<p>8. The pilot stated that the aircraft bounced twice and landed hard with the nose gear, which broke off; this was followed by the propeller strike on the ground.</p> <p>9. The aircraft was too fast on approach due to the tailwind. As a result, the aircraft touched down hard with the nose gear and bounced.</p>
<p><b>Probable Cause</b></p> <p>The aircraft landed with a tailwind; it initially bounced and finally landed hard and, as a result, the nose gear broke off and the propeller struck the ground.</p>
<p><b>Contributing Factors</b></p> <p>Incorrect landing technique. Tailwind during landing.</p>
<p><b>Safety Action(s)</b></p> <p>None.</p>
<p><b>Safety Message and/or Safety Recommendation(s)</b></p> <p>None.</p>
<p><b>About this Report</b></p> <p><i>The decision to conduct a limited investigation is based on factors including whether the cause is known and the evidence supporting the cause is clear, the level of safety benefit likely to be obtained from an investigation and that will determine the scope of an investigation. For this occurrence, a limited investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this limited report. The report has been compiled using information supplied in the initial notification, as well as from follow-up desk top enquiries to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar occurrence.</i></p> <p><i>All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.</i></p>
<p><b>Purpose</b></p> <p><i>In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011 and ICAO Annex 13, this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and not to apportion blame or liability.</i></p>
<p><b>Disclaimer</b></p> <p><i>This report is produced without prejudice to the rights of the AIID, which are reserved.</i></p>

**This report is issued by:**  
**Accident and Incident Investigations Division**  
**South African Civil Aviation Authority**  
**Republic of South Africa**